LDS PRIEST RIVER (PWSNO 1090218)
SOURCE WATER ASSESSMENT REPORT

October 31, 2002

State of Idaho
Department of Environmental Quality

SOURCE WATER ASSESSMENT FOR LDS PRIEST RIVER

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like LDS Priest River, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for LDS Priest River* describes factors used to assess susceptibility to contamination. The analysis relies on information from available well logs; an inventory of land use and potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheets for LDS Priest River are attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. LDS Priest River is located next to State Highway 2 between Albeni Falls and Priest River, Idaho. Well logs for the 2 wells that serve the system are not on file with DEQ. Driller's reports and a hydrofracturing report for LDS Priest River, found in a search of Idaho Department of Water Resources records, do not match descriptions of the wells in the public water system file.

A sanitary survey of the system in April 1996 reports that both wells have 6-inch casings and are 250 feet deep. Neither well cap was watertight. Well #1, located in the southeastern corner of the church property, was not in use at the time of the survey, but remained physically connected to the distribution system. The well casing extends 20 inches above land surface.

Well #2 is in the northeastern corner of the church parking lot. The casing terminates 3 1/2 inches below grade and is surrounded by concrete block.

Well Site Characteristics. Hydrologic sensitivity scores are derived from information on the well log and from the soil drainage classification inside the recharge zones delineated for your wells. Soils in the well recharge zones are generally moderately well-drained to well-drained. Well-drained soils provide little protection against migration of contaminants toward the well. The soil structure above the water table at the well sites is not known.

Potential Contaminant Inventory. Land use inside the recharge zones delineated for the LDS Priest River wells is suburban with 70 to 80 percent of the enclosed area devoted to agriculture. Well #1 is situated 25 feet from a surfacing spring, and 30 feet from the highway right of way. The spring is a potential source of microbial contaminants. A trucking accident on the highway could spill any class of regulated contaminant inside the sanitary setback zone for Well #1. Well #2 is about 330 feet from the spring and 360 feet from the highway. Both wells need to be evaluated to determine whether they draw from ground water directly influenced by surface water.

Water Quality History. LDS Priest River, under regulation as a non-community transient public water system, is required to monitor quarterly for bacterial contamination. In the period from September 1997 through the present only one quarterly sample was positive for total coliform bacteria. Follow-up testing was negative. The system failed to monitor during 5 quarters. Annual nitrate samples collected between 1997 and 2002 show concentration ranging from undetectable levels to 0.441 mg/l. The Maximum Contaminant Level (MCL) for nitrate is 10 mg/l.

Susceptibility to Contamination. An analysis of the LDS Priest River wells, incorporating information from the public water system file and the potential contaminant inventory, ranked both well highly susceptible to all classes of regulated contaminants. Well #1 automatically ranked highly susceptible to contamination because of its location near the spring and highway.

Unknown risk factors related to local geology account for most of the susceptibility to contamination for Well #2. Poor maintenance reported in the 1996 sanitary survey contributed 2 points to the final score. Extending the well casing to a minimum height of 12 inches above ground and installing a watertight and properly vented well cap would reduce the risk of surface contaminants reaching the ground water through the well casing. The complete analysis worksheets for your wells are on pages 6 and 7 of this report. Formulas used to compute the final susceptibility scores are at the bottom of page 7.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For LDS Priest River drinking water protection activities should focus on the repairs outlined in the 1996 Sanitary Survey of the system. Both wells need to be evaluated for possible surface water influence. Both wells needed to be fitted with watertight, vented well caps. The casing of Well #2 needs to be raised at least 12 inches above ground to protect it from surface water runoff.

Because the wells are less than 50 feet from the church's east property line, it will be important to form ground water protection partnerships with neighboring landowners. They may not be aware that grazing or application of agricultural chemicals should be restricted when this close to a public water supply.

There are a number of voluntary measures the church may want to employ to protect the wells. These might include covering the wellheads and putting barriers around them to prevent collision damage. The ground can be sloped away from the well so storm water and any spills flow away from the casings. With so many facilities to manage, the church might find it helpful to develop a written maintenance and testing schedule. Every system should have an emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website (http://www.state.id.us/deq/water/water1.htm) to guide systems through the emergency planning process. The goal of source water protection is to maintain current water quality for the future. Preventing contamination of an existing well is far more cost effective than having to replace a source damaged through neglect.

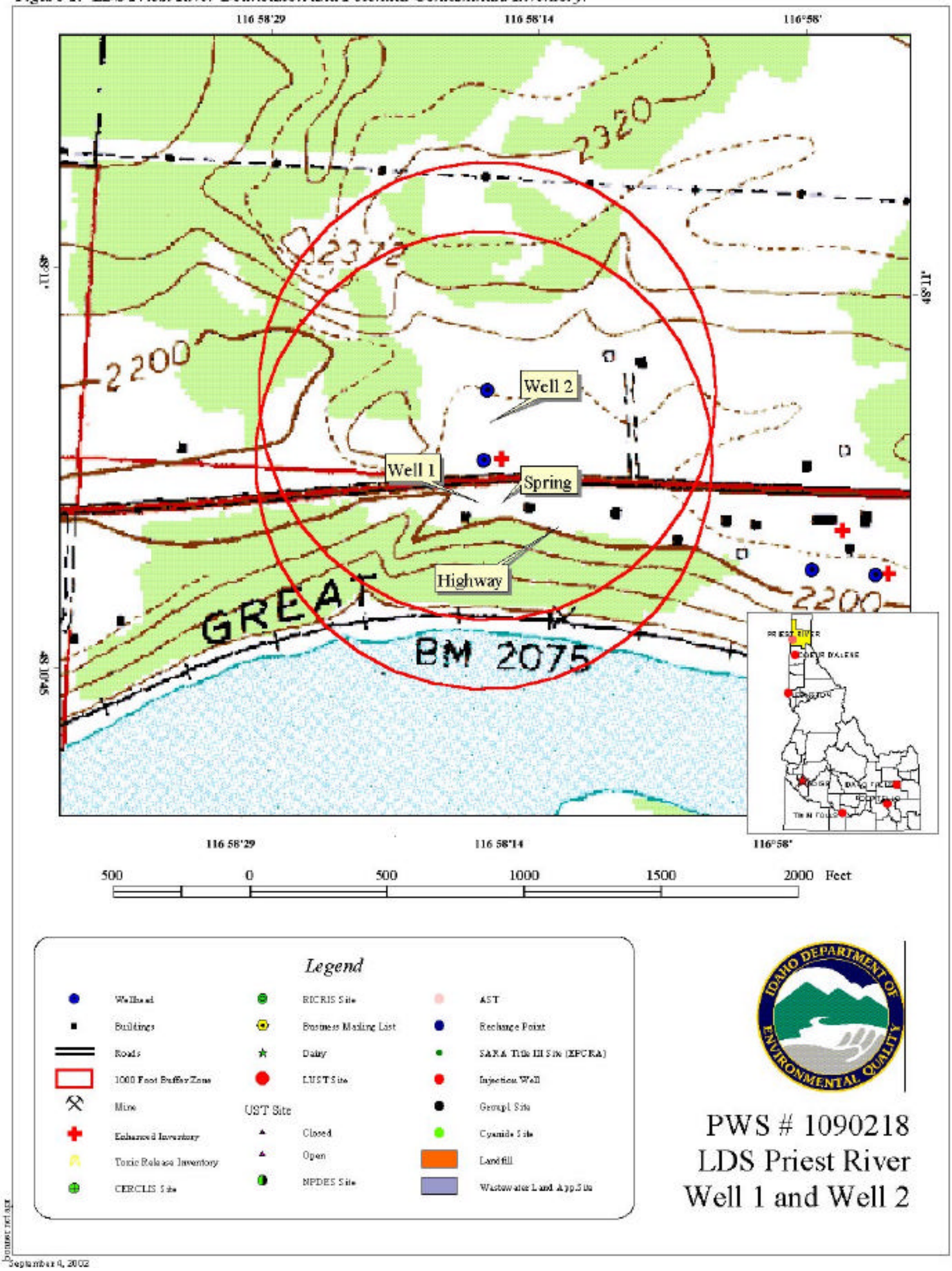
Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and for help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: http://www.deq.state.id.us/deq/water/water1.htm

Figure 1. LDS Priest River Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name : **LDS PRIEST RIVER** Well # : **WELL 1**

Public Water System Number : **1090218** 9/4/02 10:27:14 AM

1. System Construction		SCORE			
Drill Date	UNKNOWN				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES 1996				
Well meets IDWR construction standards	UNKNOWN	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	UNKNOWN	2			
Highest production 100 feet below static water level	UNKNOWN	1			
Well head protected from surface flooding	YES	0			
Total System Construction Score		**5**			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	UNKNOWN	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	UNKNOWN	2			
Total Hydrologic Score		**6**			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - Sanitary Setback		Score	Score	Score	Score
Land Use Sanitary Setback	SUBURBAN	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	YES SPRING, HIGHWAY	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Sanitary Setback		**1**	**1**	**1**	**1**
Potential Contaminant / Land Use - 1000-Foot Radius					
Contaminant sources present (Number of Sources)	NO	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
4 Points Maximum		0	0	0	
1000-Foot Radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use 1000-Foot Radius	Greater Than 50% Non-Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - 1000-Foot Radius		**2**	**2**	**2**	**2**
Cumulative Potential Contaminant / Land Use Score		**3**	**3**	**3**	**3**
4. Final Susceptibility Source Score		**12**	**12**	**12**	**12**
5. Final Well Ranking		***High**	***High**	***High**	***High**

* Automatically ranked highly susceptible due to spring and highway right of way in Sanitary Setback zone

Ground Water Susceptibility

Public Water System Name : **LDS PRIEST RIVER** Well # : **WELL 2**

Public Water System Number : **1090218** 9/4/02 10:27:25 AM

1. System Construction		SCORE			
Drill Date	UNKNOWN				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES 1996				
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	UNKNOWN	2			
Highest production 100 feet below static water level	UNKNOWN	1			
Wellhead protected from flooding	NO	1			
Total System Construction Score		**6**			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	UNKNOWN	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	UNKNOWN	2			
Total Hydrologic Score		**6**			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - Sanitary Setback		Score	Score	Score	Score
Land Use Sanitary Setback	SUBURBAN	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Sanitary Setback		**1**	**1**	**1**	**1**
Potential Contaminant / Land Use - 1000-Foot Radius					
Contaminant sources present (Number of Sources)	Highway, Spring	1	1	1	2
(Score = # Sources X 2) 8 Points Maximum		2	2	2	4
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
4 Points Maximum		1	1	1	
1000-Foot Radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use 1000-Foot Radius	Greater Than 50% Non-Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - 1000-Foot Radius		**5**	**5**	**5**	**6**
Cumulative Potential Contaminant / Land Use Score		**6**	**6**	**6**	**7**
4. Final Susceptibility Source Score		**14**	**14**	**14**	**15**
5. Final Well Ranking		High	High	High	High

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

0 - 5 Low Susceptibility
6 - 12 Moderate Susceptibility
> 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.